

1 1.1 Ratios and Proportions



(23)

$$\frac{6}{3} = \frac{x+8}{-1}$$

$$6(-1) = 3(x+8)$$

$$-6 = 3x + 24$$

$$\textcircled{31} \frac{-2}{a-7} = \frac{a}{5}$$

$$(a-5)(a-2)$$

$$(-2)(5) = a(a-7)$$

$$5, 2$$

$$\begin{array}{r} -10 = a^2 - 7a \\ +10 \qquad +10 \end{array}$$

$$0 = a^2 - 7a + 10$$

(33)

$$\frac{d}{d+4} = \frac{d-2}{d}$$

$$0 = 2d - 8$$

$$d \cdot d = (d-2)(d+4)$$

$$d^2 = d^2 + 4d - 2d - 8$$

$$d^2 = d^2 + 2d - 8$$

$$-d^2 \quad -d^2$$

(35) $\frac{x-3}{x} = \frac{x}{x+6}$ $0 = \underline{q(3q+1)}$

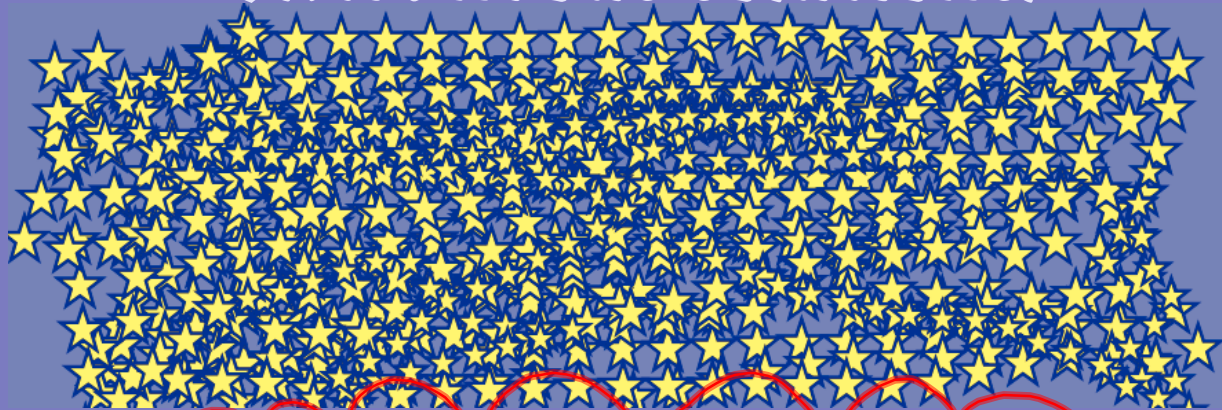
(39) $\frac{-2}{q} \cdot \frac{q+1}{q^2}$

$-2q^2 = q(q+1)$
 $-2q^2 \mid q^2 + q$
 $+2q^2 \mid +2q^2$

 $0 = 3q^2 + q$

Proportion: 

Extraneous solutions:



YOU MUST CHECK YOUR WORK!!

Solve the proportion and check for extraneous solutions

$$1. \frac{2}{3} = \frac{3}{w}$$

$$\frac{2}{3} = \frac{3}{w}$$

$$2w = 3 \cdot 3$$

$$\frac{2w}{2} = \frac{9}{2}$$



$$w = 4\frac{1}{2}$$

$$2. \frac{10}{m} = \frac{2m}{5}$$



Solve the proportion and check for extraneous solutions

$$3. \frac{-3}{d} = \frac{d-3}{2d}$$

$$4. \frac{2u-3}{4u} = \frac{u-1}{u}$$

$$-3 \cdot 2d = d(d-3) \quad (2u-3) = 4u(u-1)$$

$$-6d = d^2 - 3d \quad 2u^2 - 3u = 4u^2 - 4u$$

$$+6d \quad +6d \quad -2u^2 \quad -2u^2$$

$$0 = d^2 + 3d$$

$$-3u = 2u^2 - 4u$$

$$+3u \quad +3u$$

$$0 = 2u^2 - 1u$$

$$0 = d(d+3)$$

$$d=0 \quad d+3=0$$

$$d=-3$$

$$u(2u-1)=0$$

$$u=0 \quad u=\frac{1}{2}$$

Solve the proportion and check for extraneous solutions

$$\frac{5(x+3)}{4} = \frac{x}{5}$$

$$\frac{6(x+3)}{x+5} = \frac{x-3}{-5}$$

$$5(x+3) = 4x$$

$$\begin{array}{r} 5x + 15 = 4x \\ -4x \quad -4x \end{array}$$

$$x + 15 = 0$$

-15



Solve the proportion and check for extraneous solutions

$$7. \frac{y^2 - 9}{y + 3} = \frac{y - 3}{2}$$

$$8. \frac{6}{19n} = \frac{-2}{n^2 + 2}$$

$$6(n^2 + 2) = -2(19n)^2 \quad (3n^2 + n + 18n + 6)$$

$$6n^2 + 12 = -38n$$

$$+38n \quad +38n$$

$$n(3n + 1) \quad 6(3n + 1)$$

$$2(n + 6)(3n + 1)$$

$$6n^2 + 38n + 12 = 0$$

$$n = -6 \quad n = -\frac{1}{3}$$

$$2(3n^2 + 19n + 6) = 0$$

$$-6, -\frac{1}{3}$$



p.646

#9-14

18-40 even